

CalNex Forecast Notes - Saturday, June 26, 2010

Anticipated Flights

NOAA Twin Otter

Sat: two flights?
Sun: two flights?
Mon: potentially one flight?
Tue: transit to LA
Wed: Mexico flight

CARES DOE G-1 and NASA B200

Sat: No G-1 but B-200 flight possible
Sun: AM/PM flights likely
Mon: AM/PM flights likely
Tues: MISSION ACCOMPLISHED

Local Features

Saturday - projected light W flow from Sacramento area into foothills and turning south; Sac transport toward T0 but moves south of T1; moderate air quality.

Sunday - synoptic flow weakens significantly, terrain driven flow with light W delta inflow coupled with upslope flow; pollutant concentrations build (Unhealthy for Sensitive Groups forecast); weak flow from Sac to T0 (with long transport time) and flow south of T1; winds <5 kts.

Monday - ridge lingering longer than forecast previously; onshore flow develops late, terrain driven flow with light W delta inflow coupled with upslope flow; light winds, Sac air flows south of T1; USG air quality may remain.

Synoptic Overview for California - Jeff Lancero (jlancero@arb.ca.gov)

Saturday June 26

- Trough now over NV as High Pressure builds over the west

- Transport flow turns Northerly
- Synoptic gradients weaken

Sunday June 27

- High Pressure peaks
- Light and variable flow
- Onshore gradient weakens

Monday June 28

- High Pressure breaks down as Trof approaches
- Transport flow SW north, Southerly south
- Marine layer deepens in the north
- Light and variable flow S.CA

Tue – Thurs

- Tue: Deep Trof approaches, SW flow throughout
- Wed: Trof axis over N.CA late aftrn-eve, SW flow, deeper marine layer
- Thurs: Trof axis over Ca, W-NW flow in N.CA, W-SW in S.CA

Large Scale Transport Notes - Leon Dolislager (ldolisl@arb.ca.gov)

focus on Sacramento area

500m RDF FX 00Z 06/26 (Sat Afternoon)

Clean air wrt transport over area (clean to low levels of BC_OC, SO₄, PM_{2.5}, CO and O₃). Moderate (5-10ppbv/day) background O₃ P-L. Limited vertical displacement; moderate descent to west.

500m RDF FX 00Z 06/27 (Sun Afternoon)

Clean air wrt transport over area (clean to low levels of BC_OC, SO₄, PM_{2.5}, CO and O₃). Low (0-5ppbv/day) background O₃ P-L. Low to moderate descent of air.

500m RDF FX 00Z 06/28 (Mon Afternoon)

Clean air wrt transport over area (clean to low levels of BC_OC, SO₄, PM_{2.5}, CO and O₃). Moderate (5-10ppbv/day) background O₃ P-L. Moderate descent of air; large descent to west.

focus on San Joaquin Valley

500m RDF FX 00Z 06/29 (Tue Afternoon)

Generally clean air wrt transport over area (clean to low levels of BC_OC, SO₄, PM_{2.5}, CO); moderate O₃ levels; BC_OC and SO₄ higher in Kern County). Low

(0-5ppbv/day) background O3 P-L. Moderate descent of air; more descent on west side of valley.

RAQMS Reverse Domain Filling forecasts will continue to be posted by 6:40am (Pacific) @ http://raqms-ops.ssec.wisc.edu/RDF_products/CalNex/RDF/ Go to YYYYMM

Area Forecast Details

Sacramento Valley - Danny Kam (dkam@airquality.org)

Saturday

- Light onshore flow continues through the delta, capturing SF City, N. Bay and E. Bay emission, transport to lower Sac Cnty as WSW5kt and follows upvalley terrain; signs of N. wind in the extreme N. SV, Chico still under SE downslope influence
- Late AM: Light onshore flow steady increases, Bay plume travels through delta to Sac Cnty and outflow upvalley, flow follows "oversized italic S curve" through lower Sac Cnty into Cool; Sac Cnty SW4kt to WSW8kt
- Afternoon: NW in N. SV starts to die down; onshore flow increases, delta wind brought Bay plume to lower Sac Cnty earlier in the day, will travel from lower Sac Cnty to T0 and then follow upslope curve to T1 in late afternoon; approximate SW8kt in lower SacCnty and WSW 5kt in Cool
- Evening: Onshore flow starts to decreases, follows nocturnal upvalley flow pattern
- CANSAC picks up a stronger onshore flow, GFS does not; CANSAC seemed more accurate with current surface observations
- PBL below 0.3km in AM; 2,500 to 4,000ft in PM
- MBL around 500ft
- Clear Sky
- Max aftn temp: 35C/95F; mid-range of moderate air quality
- YTD's air quality good (border line moderate) - AQI 49 at Placerville, 48 at Folsom, 47 at Cool

Sunday

- AM: Weak onshore flow continues to die down, generally S and below 4kt in Sac Cnty in early AM; onshore flow nonexistent; stagnation in mid morning and Sac Cnty becomes SSW2kt in late morning
- Early PM: Onshore flow starts to resume W10kt in the Bay; greater upslope flow in the valley - Sac Cnty at W4kt; wind shift between late morning and early afternoon provides opportunity for Downtown plume to

move to T0 and T1, may miss T1 because southerly wind not strong enough

- Late Aftn: Onshore flow makes it way into lower Sac Cnty; upper Sac Cnty and Cool still under thermal upslope effect
- Evening: Onshore flow reaches the foothills, but not strong enough to go upslope to Cool
- PBL 500 to 1000ft in AM; PM PBL 5,000ft (S.SV)
- MBL below 500ft;
- Max aftn temp: 38C/100F; USG air quality

Monday

- AM: Weak onshore flow, almost nonexistent; stagnation (SSW2kt) in Sac Cnty until thermally driven upslope flow draws W flow in late morning; W3kt flow to Cool, Sac Cnty at W2kt in late AM;
- Early PM: Sign of onshore flow starting up, upslope flow stronger from the W; Downtown plume brush by just south of T0 and misses T1
- Late Aftn: Onshore flow reaches the delta; Downtown plume gets close to T0 (under a bit of delta wind influence) but still misses T1; T1 still experiences upslope flow from the W
- CANSAC transport wind shows plume will stay in Sac foothills, more northern than GFS tranjectories
- AM PBL 500ft; PM PBL 5,000ft
- MBL below 500ft;
- Max aftn temp: 35C/95F; USG air quality

Sacramento Trajectory (Sat) - changing wind directions cause plume toward T1 for limited hours

Sacramento Trajectory (Sun) - plume toward SE

Sacramento Trajectory (Mon) - plume toward SE

San Joaquin Valley - Jennifer Ridgway (Jennifer.Ridgway@valleyair.org)

Saturday June 26

Surface Winds: The surface observations this morning show calm to light to NW flow across the northern and central SJV, light SW flow across the southern SJV and clear skies. Temps ranging from mid 60s to 70 degrees F. Walnut Grove profiler shows light to moderate SW to NW flow up to 1,200 feet AGL with N flow above. The Chowchilla and Visalia wind profilers indicate light to moderate NW flow up to 3,000 feet and the profiler at Lost Hills indicates SW flow up to 1,000 feet AGL with NNW flow above. 0Z CANSAC shows light onshore flow through Delta into Sac County and San Joaquin County throughout the day strengthening as day progresses. Light to moderate onshore flow over Altamont and Pacheco Passes throughout the day. Light NW flow across valley. Inflow over Cottonwood

Pass briefly during morning hours becomes outflow by afternoon. Outflow over Tehachapi Pass throughout the day.

Boundary Layer Mixing: Morning aircraft sounding indicated a 7 F temp inversion at Fresno from the surface up to 1,500 feet and 3 F temp inversion at Bakersfield from surface up to 500 feet. 0Z CANSAC indicates mixing depths will improve to 3,000 to 6,000 feet with best depths over Highway 99 corridor. Lowest depths 1,000 to 1,500 feet over northwestern San Joaquin County.

Air Quality: Good to Moderate AQ due to Ozone across the SJV. 12Z ETA model showing clear skies over SJV and some clouds (below 6,000 feet) over Bay Area and Sac County area:

http://www.rap.ucar.edu/weather/model/displayMod.php?var=eta_1_clouds&hours=hr00hr36hr06hr42hr12hr48hr18hr60hr24hr72hr30hr84hr90hr96

Sunday June 27

Surface Winds: 0Z CANSAC -- pre-dawn hours -- shows light onshore flow through Delta into Sac County becomes SW flow in Sac County and light SW flow from San Joaquin County into Sac County. Light to moderate W flow through Delta into Sac County and San Joaquin County late morning through night hours. Light to moderate onshore flow over Altamont Pass throughout the day and night. Onshore flow over Pacheco Pass during pre-dawn hours becomes light and variable after sunrise. Flow over Pacheco Pass becomes light offshore by late morning then resumes onshore direction by 17:00. throughout the day and evening. Cottonwood and Tehachapi Passes throughout the day.

Boundary Layer Mixing: 0Z CANSAC indicates mixing depths will improve to 3,000 to 5,000 feet with best depths from central Fresno County northward and over Kern County. Lower depths 1,000 to 2,200 feet over north-central Stanislaus County, and parts of Fresno, Kings, and Tulare Counties.

Air Quality: Moderate AQ is expected in northern and part of central SJV due to Ozone. USG AQ due to Ozone expected in part of central and in the southern SJV. ETA model showing clear skies.

Monday June 28

Surface Winds: 0Z CANSAC shows light onshore flow through Delta into Sac County and San Joaquin County throughout the day. Light onshore flow over Altamont Pass during early morning becomes light and variable then somewhat northerly as it flow into SJV during early afternoon. Onshore flow resumes by 17:00. Light onshore flow over Pacheco Pass weakens on the SJV side lending to flow converging at the top of the pass in the afternoon before resuming full onshore flow by 17:00. Light NW flow across valley and outflow over Cottonwood and Tehachapi Passes throughout the day.

Boundary Layer Mixing: 0Z CANSAC indicates mixing depths will improve to 3,000 to 6,500 feet with best depths over central Kern and Tulare Counties and from central Fresno County northward. Lower depths over western Tulare County, Kings County, and western Fresno County.

Air Quality: Moderate AQ is expected in northern SJV and USG AQ in central and southern SJV due to Ozone. ETA model showing clear skies.

Tuesday June 29 and Wednesday June 30

Surface Winds: GFS shows light NW flow on Tuesday and SW flow on Wednesday across SJV as the trough moves into region.

Boundary Layer Mixing: Mixing expected to improve (3,000 to 6,500 feet) by Wednesday.

Air Quality: Expected to have Good AQ in northern SJV and Good to Moderate AQ in central and southern SJV on Tuesday, and Good AQ District-wide on Wednesday due to Ozone. ETA model showing clear skies both days.

Potential Targets for next Flight Day

Sunday: Flow from Delta into San Joaquin County and flow over Pacheco Pass. Poor AQ in SJV.

Monday: Light onshore flow over Pacheco Pass weakens on the SJV side leading to flow converging at the top of the pass in the afternoon before resuming full onshore flow by 17:00.

Note: No wildfires going on and no prescribed burn projects planned for today or tomorrow.

Central Coast -

(NO FORECAST TODAY until SoCal operations)

SoCal Coastal Waters -

(NO FORECAST TODAY until SoCal operations)

South Coast Basin -

(NO FORECAST until SoCal operations)